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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,947	04/10/2001	Junji Yamada	205650US3	6993

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ALEXANDRIA, VA 22314

EXAMINER

TRAN, THANH Y

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/828,947

Applicant(s)

YAMADA, JUNJI

Examiner

Thanh Y. Tran

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-8 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the word nominal limits the scope of diameter.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 2, 4, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masumoto et al (U.S. 5,646,445) in view of applicant's admitted prior art and Masahiro (JP07-279109).

Masumoto (Fig. 29) discloses a power semiconductor module with a connection structure that has an electrode terminal (1,2) including a first end connected with a power semiconductor device (E2), which is resin sealed (41,42) inside a case (11), a second end of said terminal exposed along the outer surface of the case with an embedded nut (31) with a female screw hole (Line 18, Column 2) provided on a side of outer surface of the case, and a male screw member ("bolt", Lines 19-20, Column 2) having screw threads wherein inherently the screw member has different nominal diameters at different ends (via diameter portion including thread on one end versus portion diameter non-threaded portion [groove between thread]) an end is threadedly engaged with the female screw hole, and a portion of the male screw extends through the electrode terminal.

Masumoto does not disclose the terminal as being electrically connected to an electrode plate for external connection with a male screw having a second threaded end passes through a hole of the electrode plate and a second end engages a nut.

However, applicant's admitted prior art (Fig. 9) utilizes an electrode terminal being connected to an electrode plate (97) wherein a portion of the screw passes through a hole in an electrode plate.

It would have been obvious to one of ordinary skill in the art to connect the terminal of Masumoto to an electrode plate, such that a screw passes through a hole in the electrode plate in order to form an external connection as admitted by applicant (Lines 18-19, Page 2).

As for a male screw having an end that engages a nut, Masahiro teaches the use of engaging a nut to the end of a screw where the other end is inserted in a female hole.

It would have been obvious to one of ordinary skill in the art to use a screw with both ends threaded wherein one end is inserted in a female hole in order to provide fastening bolt as required by Masumoto, further it would have been obvious to one of ordinary skill in the art to engage a nut to the other end of the male screw in order to hold the items beneath the nut to the body of the package (i.e. electrode plate to the external terminal and package) as taught by Masahiro (English Constitution).

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto, APA and Masahiro as applied to claim 1 above, and further in view of Takegawa (JP 09-55462).

Neither Matsumoto, APA or Masahiro show the terminal with a female screw hole formed therein, however Takegawa utilizes a female screw hole within a terminal.

It would have been obvious to one of ordinary skill in the art to modify the combined terminal structure of Matsumoto and APA by incorporating a female screw hole within the terminal in order to lessen the manufacturing cost of the semiconductor by dispensing with the fixing nut as taught by Takegawa (Abstract Solved, Lines 1-3).

6. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto, APA and Masahiro as applied to claim 1 and further in view of Abe (U.S. 4,018,132).

The prior art does not show the threads of a screw or bolt at opposite ends having threads of opposite direction or with a middle portion having no screw thread.

However, Abe (Fig. 3) utilizes a screw or bolt at opposite ends having threads of opposite direction and a middle portion having no screw thread.

It would have been obvious to one of ordinary skill in the art to form the screw of

Masumoto with of a screw or bolt having threads of opposite direction at opposite ends and with a middle portion having no screw thread, in order to increase the mechanical strength of the bolt as taught by Abe (Lines 30-31, Column 1).

Response to Arguments

7. Applicant's arguments filed 11/21/03 have been fully considered but they are not persuasive.

Applicants argued that Matsumoto does not teach or suggest the claimed features of a male screw member having screw threads disposed on both ends penetrating through a hole of an electrode terminal, and then engaging a nut with the male screw member, as recited in independent claim 1. The Examiner agrees that Matsumoto and the admitted prior art (Fig. 9) submitted by Applicants do not teach the claimed features of a male screw member having screw threads disposed on both ends penetrating through a hole of an electrode terminal, and then engaging a nut with the male screw member, as recited in independent claim 1. However, Masahiro (JP07-279109) clear discloses the mounting structure includes a male screw member (3) having screw threads disposed on both ends penetrating through a hole of a mounting terminal 11, and then engaging a nut (4) with the male screw member (3). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made

to modify the mounting structures of Matsumoto and the admitted prior art (Fig. 9) submitted by Applicants by including a male screw member having screw threads disposed on both ends penetrating through a hole of a mounting terminal, and then engaging a nut (4) with the male screw member as taught by Masahiro (JP07-279109) (see the figure and English Constitution). One of ordinary skill in the art would be motivated because using a male screw member having screw threads disposed on both ends for the purpose of adjustable holding/retaining the mounting terminals and/or external mounting elements with the mounting structure with respect to changes in volume/thickness of the mounting terminals and external terminals/elements (see the figure and English Constitution in Masahiro's reference).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

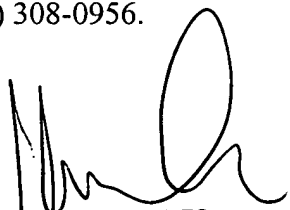
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Y. Tran whose telephone number is (571) 272-2110. The examiner can normally be reached on Monday through Thursday and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo, can be reached on (571) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TYT



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